

[54] **PUP JOINT WITH INTEGRAL WING NUT
RETENTION SHOULDER**

[75] Inventor: **Paul A. Crawford**, Stephenville, Tex.

[73] Assignee: **FMC Corporation**, Chicago, Ill.

[21] Appl. No.: **962,182**

[22] Filed: **Oct. 31, 1997**

Related U.S. Application Data

[63] Continuation of Ser. No. 651,646, May 22, 1996, abandoned.

[51] Int. Cl.⁶ **F16L 19/025**

[52] U.S. Cl. **285/23; 285/354; 285/387;
285/388**

[58] Field of Search **285/23, 354, 386,
285/387, 388, 321**

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,186,021 6/1916 Mezger 285/388
2,298,109 10/1942 Frank 285/388
3,751,077 8/1973 Hiszpanski 285/386
4,116,477 9/1978 Waboski 285/386

4,124,234 11/1978 Clark 285/388
4,575,044 3/1986 Gentry 285/388
4,648,634 3/1987 Kelch 285/387
4,877,270 10/1989 Phillips 285/387
5,160,174 11/1992 Thompson 285/387
5,362,109 11/1994 Pacnt 285/388

FOREIGN PATENT DOCUMENTS

723284 3/1980 U.S.S.R. 285/387
17810 1/1914 United Kingdom 285/387

Primary Examiner—Eric K. Nicholson

Attorney, Agent, or Firm—Henry C. Query, Jr.

[57]

ABSTRACT

A pup joint is provided which comprises a length of pipe, a female sub integral with one end of the pipe and having external threads formed thereon, a male sub integral with the other end of the pipe, a wing nut for threadedly connecting the male sub to the female sub, a set of retainer segments for retaining the wing nut on the pup joint, and a retention shoulder formed on the male sub to maintain the wing nut and retainer segments on the male sub. In a preferred embodiment of the invention, the pipe and the male and female subs are comprised of a single forging, and the retention shoulder is formed by machining the male sub.

3 Claims, 2 Drawing Sheets

